PATENT CLAIMS

1. Packet switching data communications networks (packet networks) **comprising** Window-Time-Space Flow Control, WTFC, constructed using:
   - WTFC terminals and
   - nodes (201) with or without WTFC control algorithms

2. The terminals of Claim 1, Figure 1, **comprising** WTFC algorithms and
   - WTFC receiver (113) of packets or other data unit under the WTFC control
   - WTFC transmitter (101) of packets or other data unit under the WTFC control.

3. Packet transmitter (101) of Claim 2 that form packet in segmentation process (102) when user data exist and include in it's header acknowledgment data as ordered from the receiver, or form separate acknowledgment packet as ordered from the receiver, store packet in packet buffer (104) and emit packet through packet sending process (105) **comprising** initialization of header variables using initialization process (103).

4. Packet transmitter (101) of Claim 2 further **comprising** the packet sending initiation :
   - condition of packet sending period $t_0'''(\alpha)$ expiration (credit) in process of transmission rate clock signal with one credit buffer (108)
   - condition of optimal window $W_0(\alpha)$ not being filled in process of optimal window check (111) that verifies whether current window is less than $W_0(\alpha)$

   are satisfied.

5. Packet transmitter (101) of Claim 2 further **comprising**:
   - calculation of $t_0'''(\alpha)$ in $t_0'''(\alpha)$ calculation process (107)
     according to Equations 52 and 23, and 53 and 54
   - calculation of $W_0(\alpha)$ in $W_0(\alpha)$ calculation process (110) using Equations 25 and 26
   - check measured point (W,T) position in area check process (112) using Equation 18

6. Packet transmitter (101) of Claim 2 further **comprising**:
   - parameters provided by receiver (113) after acknowledgment reception,
   - (W,T) point measurement in (W,T) point measurement process (106)
     using Equations 1, 2 and 51
   - calculation and correction of parameters (W_0,T_0) and T_p using total capacity estimation and correction process (109).

7. Packet receiver (113) of Claim 2, that after packet reception with packet reception process (115) extract data with extraction process (114) and deliver them to users, comprising extraction of parameters from the packet header mentioned in Table 1 using extraction process (114), and delivering them to the transmitter (101).

8. Initialization process (103) of Claim 2 comprising initialization of new packet header variables mentioned in Table 1 by:
- setting the forward last acknowledgment variable a_{jf} to the value of last acknowledgment number received,
- setting backward last acknowledgment variable a_{jb} to the value of the same forward variable received in packet from the opposite direction, whose acknowledgment number is carried by new packet,
- setting forward sending time variable $T(p_k)_f$ to actual local time
- setting backward sending time variable $T(p_k)_b$ to the value of the same forward variable received in packet from the opposite direction, whose acknowledgment number is carried by new packet

9. Initialization process (103) of Claim 3 further comprising initialization of new packet header variables mentioned in Table 1 when total network capacity signaling method is used, by:
- setting forward propagation time cumulative variable T_{p0f} to zero.
- setting forward reciprocal capacity value cumulative variable S_{cif} to zero.
- setting forward reciprocal minimal channel capacity variable C_{iminf} to the maximal value
- copying values from variables T_{p0f}, S_{Cif}, i C_{iminf} received in the opposite direction packet to the same backward variables.

10. $t_0'''(\alpha)$ clock calculation process (107) with one credit buffer (108) of Claim 4 comprising connection startup algorithm according to Figures 9 and 10 for smooth packet sending, and after expiration of period initialized:
- before first acknowledgment reception, and if there is no credit stored, increments credit buffer by 1 and reinitiates the same time period,
- before first acknowledgment reception, and if there is credit stored, initiates double time period and initiates packet emitting,
- after first acknowledgment reception sets credit buffer to 1 and initiates packet emitting.

11. Total capacity estimation and correction process (109) of Claim 6 **comprising**, when network capacity signaling method is used,
- calculation of T_p according to Equation 37,
- calculation of T_0 according to Equation 3,
- calculation of W_0 according to Equation 27,

applying extracted parameters from first or every packet received from the opposite direction.

12. Total capacity estimation and correction process (109) of Claim 6 further **comprising**, when network capacity estimation and packet pair methods are used,
- calculation of T_0 using $T_0=T$ after the first acknowledgment is received,
- calculation of W_0 using $W_0=T_0/(T-T_0)$ after the second acknowledgment is received

applying extracted parameters from every packet received from the opposite direction.

13. Total capacity estimation and correction process (109) of Claim 6 further **comprising**, when network capacity estimation and packet pair methods are used, if measured $T<T_0$
- correction of T_0 using $T_0=\min(T)$,
- correction of W_0 using Equation 49 if $T<T_p$, otherwise using Equations 43 and 44,
- correction of T_p using Equation 17,

applying measured parameters from every packet received from the opposite direction.

14. Nodes (201) of Claim 1, Figure 2, that forward packets with forwarding process (202), **comprising**, when network capacity signaling method is used, capacity signaling process (203).

15. Capacity signaling process (203) of Claim 14 **comprising** the modification of first or every packet by
- updating forward propagation time cumulative variable T_{pof} using Equation 33,
- updating forward reciprocal capacity value cumulative variable S_{cif} using Equation 34,
- updating forward reciprocal minimal channel capacity variable C_{iminf} using Equation 35